

## An Aberrant Trifurcate Tarsus in *Elaphidion mucronatum* (Say) (Coleoptera: Cerambycidae)

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Several specimens of *Elaphidion mucronatum* (Say) were collected by Mr. Dennis Robarge in Bowling Green, Ohio, on April 28, 1968. One of these, a male, possessed an abnormal, trifurcate, right protarsus. All other tarsi and other external features are perfectly normal.

The aberrant protarsus is illustrated (Fig. 1). The morphology of this tarsus is either tripled or otherwise highly modified.

The 1st and 2nd tarsomeres are abnormally wide—the 1st being approximately double the normal width, and the 2nd nearly three times the width of a normal segment. The enlarged 1st tarsomere provides a base for the enormous 2nd segment, to which three 3rd tarsal elements attach. Both normal and abnormal protarsi are the same length (ca. 2.9 mm.).

The 1st and 2nd tarsomeres are not actually divided but show related modifications. The setose ventral pad (or "brush") of the 1st segment is divided into two unequal parts by a narrow glabrous strip. The 2nd tarsomere is also unequally divided: the anterior portion being connected to two of the 3rd tarsal segments and having an abnormally large "brush," while the posterior portion (with a more normal ventral "brush") connects with only one of the 3rd tarsomeres.

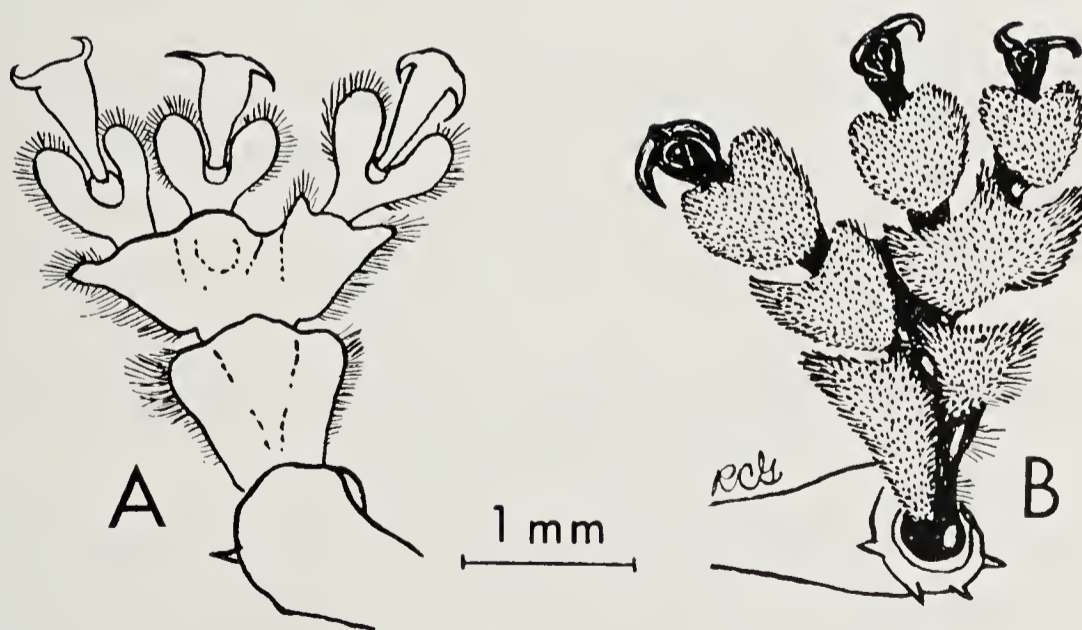


FIGURE 1. Trifurcate right protarsus of *Elaphidion mucronatum* (Say), male: (A) dorsal view; (B) ventral view (tarsal pads stippled). Other setae are not shown.

The tripled distal tarsomeres (3, 4, and 5) appear essentially normal except that the posterior set is the larger of the three. The lobed 3rd tarsomeres with their ventral "brushes," the minute 4th segments, and the claw-bearing 5th tarsomeres are otherwise normal in appearance.

No difference in length exists between aberrant and normal tibiae and femora, but the right tibia is enlarged at the apex and bears 4 apical spines instead of the normal two. Like the 1st and 2nd tarsomeres, the tibia is not actually divided but shows duplicated structures.

The specimen appeared to walk "with a baseball catcher's mitt" on one leg, but this did not seem to interfere with its locomotory ability. However, most of the setae are worn from the anterior basal portion of the abnormal 1st protarsomere (see fig. 1-B). This may be due to some difficulty in moving this tarsus while walking.

Trifurcate and bifurcate antennae have been reported in several species of Coleoptera but I could find no reference to such aberrations in the tarsus, perhaps indicating that tarsal abnormalities are extremely rare. Wood (1965) describes a trifurcate antenna in *Cicindela scutellaris lecontei* (Hald.) and Gerhardt and Turley (1963) report another in *Megacyllene antennatus* (White). Photographs of both of these trifurcate antennae show a curious asymmetry, in that one of the forks is larger than the other two; the same asymmetry that exists in the tarsus described here. The bifurcate antenna in *Cicindela nevadica knausi* Leng does not appear to show such an asymmetry, both branches appearing approximately equal (Willis, 1967; figs. 85, 86). There must be a basic reason for this but I have no explanation to offer at present, nor do I know what may have caused these deformities.

#### LITERATURE CITED

- GERHARDT, P. D. and D. L. TURLEY, 1963. Unusual cerambycid antenna. Pan-Pacific Entomol. 39:272-275.
- WILLIS, H. L., 1967. Bionomics and zoogeography of tiger beetles of saline habitats in the Central United States (Coleoptera: Cicindelidae). Univ. Kansas Sci. Bull. 47:145-313.
- WOOD, G. R., 1965. A trifurcate tiger beetle antenna (Coleoptera: Cicindelidae). J. Kansas Entomol. Soc. 38:392-394.

### **Ecosystem economy: *Onthophagus* using a *Canthon* brood ball.**

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On August 1, 1967, on the gravel road just outside of Guadalupe Canyon (Arizona, Cochise County, Peloncillo Mts.) my wife and I noticed great numbers of dung beetles swarming around some fresh cow dung. Stopping for a closer look we watched for some time as sexual pairs of the large black *Canthon imitator* Brown and the smaller metallic green or blue *Canthon indigaceus*